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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/664,126 | 09/17/2003 | Bradley L. Todd | 2003-IP-010228U1 | 4729 |

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| EXAMINER | |
|---|---|
| FIGUEROA, JOHN J | |

| ART UNIT | PAPER NUMBER |
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| 1712 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/664,126 | TODD ET AL. | |
| | Examiner | Art Unit | |
| | John J. Figueroa | 1712 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *25 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *15-18,20-31 and 47-68* is/are pending in the application.

4a) Of the above claim(s) *24-27,31,51-54 and 68* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-18,20-23,28-30,47-50 and 55-67* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. Receipt is acknowledged of a request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e) and a submission (amendment), filed on May 25, 2007. The request has been deemed proper and this application has been hereby examined in view of said amendment.

### *Election/Restrictions*

2. Applicant's election to prosecute the claims in Group I of the restriction requirement and the election of poly(orthoesters) as the species for the degradable material were made without traverse and was so indicated in the Office Action of December 13, 2006. The restriction/election had been acknowledged by Applicant on page 9 (Item VI B) of the previous amendment of September 26, 2006.

3. This restriction requirement was deemed proper and therefore had been made Final in the Final Office Action of December 29, 2006 (hereinafter 'FOA'). Accordingly, claims 15-18, 20-23, 28-30, 47-50 and 55-67 have been examined whereas claims 24-27, 31, 51-54 and 68 have been withdrawn as drawn to a non-elected invention/species but remain in the current application.

***Claim Rejections - 35 USC § 102***

4. **The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action**.

5. Claims 15-18, 20-23, 29, 30, 47-50, 56-64, 66 and 67 are rejected under 35 U.S.C. 102(b) as anticipated by United States Patent Number (USPN) 6,387,986 to Moradi-Araghi et al. (hereinafter 'Moradi-Araghi').

Applicant has amended the bridging agent in independent claims 15 and 47 to be a degradable material. However, dependent claims 22 and 49 define the degradable material (and, thus, the bridging agent) to be, *inter alia*, (poly)orthoester.

Moradi-Araghi discloses a gel-forming composition comprising a material encapsulated with a degradable first polymer; a second polymer and a liquid (col. 3, lines 59-65); a clay may be included as a viscosifier (can be at 0.25 weight percent) and a weighting agent such as calcium carbonate (that can further act as a bridging agent) can also be added (see col. 3, line 66 to col. 4, line 27). The degradable first polymer may be a polyorthoester (see col. 3, lines 12-16) and/or a poly(lactic acid-co-glycolic acid) that can also behave as a plasticizer (col. 3, lines 15-17; claim 3). (*See also*, instant specification, pages 9 and 10, paragraphs [0026] and [0027] disclosing polylactide polymers as an exemplary plasticizer).

The second polymer can be a carboxymethylcellulose or xanthan gum (may be at 0.01 weight percent) [well known as viscosifiers and fluid loss control agents], among others (see col. 5, lines 4-22 and 60-67). The liquid can be water (see col. 6, lines 12-17). The fluids of Moradi can be used during drilling (see col. 6, lines 60-65). The

capsules of the first polymer can be fairly small (see Example1 and col. 4) and can act as a bridging agent.

The method step of circulating is implied in the disclosure of use in drilling. The method steps of forming a cake and degrading/self-degrading this cake are inherent in the materials used here when placed downhole. Note that the capsule can be designed so that gellation is slow and a thin gel may be produced (see col. 4); this allows for an initial filter cake to form and degrade (at least in part) before a second type of cake is formed; this second cake may be much thinner and more permeable than the first.

As to claim 29, the definition given at page 6, paragraph 20 of the specification for efficient filter cake is broad enough to include about any situation disclosed by the reference. As to claims 30 and 67, some of the amounts described for degradable material in the reference are within those of claim 30 and 67 (see col. 4 and Example 1).

As to claim 56, fluids within this range are taught (see col. 4-6).

The reference describes and contemplates capsules of a degradable polymer that are of small enough size to be useful as a bridging agent. (See, e.g., Example 1 and col. 4) Larger capsules can be used for this purpose, even if not optimally.

Thus, the instant claims are anticipated by Moradi-Araghi.

***Claim Rejections - 35 USC § 103***

6. Claims 15, 23, 28, 47, 50, 55 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moradi-Araghi (as applied above to claims 15 and 47 above) in view of either USPN 5,728,652 to Dobson et al. (hereinafter 'Dobson'); USPN 5,191,931

to Himes et al (hereinafter 'Himes '); **or** USPN 4,531,594 to Cowan (hereinafter 'Cowan').

The Moradi-Araghi reference has been discussed above in paragraph #5, and all the grounds of rejection and arguments therein are incorporated herein in their entirety.

Moradi-Araghi is silent regarding the particle size of the various components of the drilling fluid composition, such as the bridging agent and the degradable polymer.

However, it is well known in the prior art to control the particle size for drilling fluid components, such as a bridging agent, a degradable polymer or other fluid-loss control additives dependent on the particular application/formation.

For example, Dobson teaches that bridging agents are routinely sized to have a particular size distribution sufficient to seal off pores, preferably having a particle size of between 5 and 800 microns. (Col. 5, line 51 to col. 6, line 12) Himes teaches that particle sizes of solid materials of a drilling composition are manipulated to bridge formation pores to prevent fluid loss. (Abstract) Cowan discusses design variability of particle size of fluid-loss control additives in drilling fluids to provide enhanced fluid loss prevention, preferably between 74 and 2 microns. (Col. 2, lines 22-26; col. 5, lines 29-43)

Nevertheless, it would have been obvious to one of ordinary skill in the art to control the size of the capsules, and in the course of this routine optimization process, capsules within the range of claim 28 and 55 could have been made which are clearly suitable for use as bridging agents. To the extent that the size of the capsule, such as

in Example 1, differs from the size in claims 28 and 55, it would have been obvious to control the size to attain specific degradation times.

Moreover, although Moradi-Araghi may not explicitly disclose adding a plasticizer to the composition (although Moradi-Araghi does disclose adding polylactide as discussed above), or hydroxyethylcellulose/starch as a fluid loss reducer, it is common in the art to add (modify) a drilling fluid by adding a plasticizer or hydroxyethylcellulose as a viscosifier/fluid loss reducing agent to provide a more efficient method of drilling a subterranean formation. (*See, e.g.*, Dobson, col. 1, line 49 to col. 2, line 25; Himes, co1. 1, lines 63 to col. 2, line 12; Cowan, col. 11, lines 8-16)

Therefore, it would have been obvious to a person of ordinary skill in the art to optimize the particle size of the bridging agent/degradable polymer of, and/or add a conventional fluid loss reducer (such as hydroxyethylcellulose or starch) to, the drilling fluid composition disclosed in Moradi-Araghi. One skilled in the art would have been motivated to do so to incorporate the teachings of Dobson, Himes or Cowan and attain a superior drilling fluid having effective bridging of the formation pores and enhanced fluid loss prevention.

Thus, the instant claims are unpatentable as obvious over Moradi-Araghi in view of Dobson, Himes **or** Cowan.

***Response to Arguments***

*The 35 U.S.C. 102 Rejection over Moradi-Araghi*

7. Applicant's arguments regarding the 35 U.S.C. 102 rejection of claims as anticipated by Moradi-Araghi have been fully considered but they are found not persuasive.

Examiner notes that Applicant has presented arguments for the 102 and 103 rejections over Moradi-Araghi. However, in both instances Applicant's arguments regarding Moradhi-Araghi not "disclos[ing] a bridging agent comprising a degradable material" are inaccurate. As discussed above, Applicant has limited the bridging agent to be the degradable material. Moradi-Araghi discloses drilling compositions containing poly(orthoester), which are defined in the instant specification and claims to be a degradable material. Consequently, Moradi-Araghi is disclosing the drilling composition to comprise a bridging agent in accordance with Applicant's specification.

Accordingly, the instant clams are unpatentable over Moradi-Araghi.

*The 103 Rejection over Moradi-Araghi (item 14 on page 13 of OA)*

8. Applicant's arguments regarding the 35 U.S.C. 103 rejection of claims 15, 23, 47, 50 and 65 as unpatentable over Moradi-Araghi have been fully considered but they are not persuasive.

Examiner's discussion of Applicant's arguments concerning Moradi-Araghi of paragraphs #5, 6 and 7 apply equally to the instant rejection and are incorporated

herein. Applicant has limited the bridging agent to be, e.g., poly(orthoester). Moradi-Araghi meets this limitation because it discloses the drilling composition to contain poly(orthoester).

Thus, this rejection over Moradi-Araghi has been maintained.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Figueroa whose telephone number is (571) 272-8916. The examiner can normally be reached on Mon-Thurs 8:00-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JJF/RAG

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